

CLAIMS

What is claimed is:

1 1. A method of facilitating interaction between a human user and a processing system,
2 the method comprising:
3 receiving information associated with the user at the processing system; and
4 using the information to optimize a spoken dialog between the user and the
5 processing system.

1 2. A method as recited in claim 1, wherein said using the information to optimize the
2 spoken dialog between the user and the processing system comprises using the
3 information to shorten a duration of the spoken dialog between the user and the
4 processing system.

1 3. A method as recited in claim 2, wherein said using the information to shorten the
2 duration of the spoken dialog comprises using the information to reduce the amount of
3 information the user is required to provide during the spoken dialog.

1 4. A method as recited in claim 1, wherein said using the information to reduce the
2 amount of information the user is required to provide during the spoken dialog
3 comprises using the information to reduce a number of items of information the user is
4 required to speak during the spoken dialog.

1 5. A method as recited in claim 1, wherein said using the information to reduce the
2 amount of information the user is required to provide during the spoken dialog
3 comprises using the information to reduce a number of states of the spoken dialog.

1 6. A method as recited in claim 1, wherein said using the information to optimize the
2 spoken dialog is performed dynamically in response to the user accessing the
3 processing system.

1 7. A method as recited in claim 1, wherein said receiving information associated with
2 the user comprises receiving the information from a remote site on a network.

1 8. A method of facilitating operation of a plurality of interconnected speech-enabled
2 sites on a network, the method comprising:
3 receiving information about a user at a server system on the network; and
4 providing the information about the user to a speech-enabled site of the plurality
5 of interconnected speech-enabled sites, in response to the user accessing said speech-
6 enabled site.

1 9. A method as recited in claim 8, further comprising maintaining the information
2 about the user at the server system after said receiving and prior to said providing.

1 10. A method as recited in claim 8, wherein said maintaining the information about the

2 user at the server system comprises maintaining the information in a user profile.

1 11. A method as recited in claim 8, wherein the information about the user is for use by
2 the speech-enabled sites in optimizing spoken dialogs between the speech-enabled sites
3 and the user.

1 12. A method as recited in claim 8, further comprising using the server system to
2 acquire the information about the user from a first site on the network based on an
3 interaction between the user and the first site.

1 13. A method as recited in claim 8, further comprising using the server system to
2 execute a voice browser for enabling a user to access the speech-enabled sites on the
3 network.

1 14. A method as recited in claim 8, further comprising using the server system to
2 maintain a look-up service configured to enable the speech-enabled sites to receive the
3 information about the user.

1 15. A method as recited in claim 8, wherein said providing comprises using the server
2 system to broker the information about the user for the plurality of interconnected
3 speech-enabled sites.

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1 16. A method as recited in claim 13, wherein said using the server system to broker the
2 information about the user comprises using the server system to selectively provide the
3 plurality of interconnected speech-enabled sites with access to the information about
4 the user.

1 17. A method as recited in claim 13, wherein said using the server system to broker the
2 personalized information associated with the user comprises using the server system to
3 verify access to the personalized information by executing a user verification process.

1 18. A method as recited in claim 8, wherein said providing comprises using the server
2 system to enable the speech-enabled site to directly contact a second speech-enabled site
3 on the network, to receive information about the user.

1 19. A method of executing a spoken dialog between a user and a speech-enabled site in
2 a network including a plurality of interconnected sites, the method comprising:

3 acquiring information associated with the user at a first speech-enabled site of
4 the plurality of sites;

5 providing said information to a second speech-enabled site to which the user
6 requires access; and

7 using said information at the second speech-enabled site to optimize a spoken
8 dialog between the user and the second speech-enabled site.

1 20. A method as recited in claim 19, wherein said acquiring information associated with
2 the user at the first speech-enabled site comprises acquiring the information associated
3 with the user from a third site on the network.

1 21. A method as recited in claim 19, wherein said acquiring information associated with
2 the user at the first speech-enabled site comprises acquiring said information from the
3 user.

1 22. A method as recited in claim 19, further comprising maintaining a look-up service
2 for enabling the information associated with the user to be shared between the first and
3 second speech-enabled sites.

1 23. A method as recited in claim 19, wherein said providing comprises providing said
2 information to the second speech-enabled site in response to the user requiring access to
3 the second speech-enabled site.

1 24. A method of executing a spoken dialog between a user and a speech-enabled site in
2 a network including a plurality of voice-hyperlinked speech-enabled sites, the method
3 comprising:

4 acquiring information associated with the user at a first speech-enabled site of
5 the plurality of speech-enabled sites during a first spoken dialog between the user and
6 the first speech-enabled site;

7 in response to the user initiating a voice hyperlink to access a second site of the
8 plurality of speech-enabled sites, providing the information associated with the user to
9 the second speech-enabled site; and

10 optimizing a second spoken dialog between the user and the second speech-
11 enabled site by applying the information associated with the user to reduce a number of
12 states of the second dialog.

1 25. A method as recited in claim 24, wherein said optimizing the second spoken dialog
2 comprises using the information associated with the user to reduce a number of items
3 of information the user is required to speak during the spoken dialog.

1 26. A method as recited in claim 24, wherein said optimizing the second spoken dialog
2 comprises using the information associated with the user to reduce the length of the
3 second dialog.

1 27. A method of facilitating operation of a plurality of interconnected speech-enabled
2 sites on a network, the method comprising:
3 providing a server system on the network; and
4 operating the server system to selectively provide the speech-enabled sites with
5 access to information about users of the speech-enabled sites.

1 28. A method as recited in claim 27, wherein the information is for use by the speech-

2 enabled sites in executing spoken dialogs with the users.

1 29. A method as recited in claim 27, wherein the information is for use by the speech-
2 enabled sites in optimizing spoken dialogs with the users.

1 30. A method as recited in claim 28, wherein said operating the server system to
2 selectively provide the speech-enabled sites with access to information about users of
3 the speech-enabled sites comprises using the server system to selectively provide the
4 speech-enabled sites with access to information about the users, based on user profiles
5 of the users.

1 31. A method of facilitating operation of a plurality of interconnected speech-enabled
2 sites on a network, the method comprising:
3 using a server system on the network to execute a browser for enabling a user to
4 access the speech-enabled sites; and
5 using the server system to broker information associated with the user for the
6 speech-enabled sites on the network.

1 32. A method as recited in claim 31, wherein the information is for use by speech-
2 enabled sites on the network to optimize spoken dialogs with the user.

1 33. A method as recited in claim 31, wherein the browser is a speech-enabled browser.

1 34. A method as recited in claim 31, wherein the browser is a DTMF responsive
2 browser.

1 35. A method as recited in claim 31, wherein said using the server system to broker the
2 information associated with the user comprises using the server system to selectively
3 provide the plurality of interconnected speech-enabled sites with access to the
4 information associated with the user.

1 36. A method as recited in claim 31, wherein said using the server system to broker the
2 information associated with the user comprises using the server system to verify access
3 to the information by executing a user verification process.

1 37. A method as recited in claim 31, wherein said using the server system to broker the
2 information associated with the user comprises using the server system to verify that a
3 particular site on the network is authorized to access the information associated with
4 the user.

1 38. A method as recited in claim 31, wherein the information associated with the user is
2 maintained at a first site on the network; wherein said using the server system to broker
3 the information associated with the user comprises:
4 receiving a request for information associated with the user, the request

5 associated with a second speech-enabled site on the network, and

6 in response to the request, using the server system to provide the information to
7 the second speech-enabled site.

1 39. A method as recited in claim 31, wherein a first speech-enabled site on the network
2 maintains the information associated with the user, and wherein said using the server
3 system to broker the information associated with the user comprises:

4 receiving a request for information associated with the user, the request
5 associated with a second speech-enabled site on the network; and

6 in response to the request, enabling the second speech-enabled site to
7 communicate with the first speech-enabled site, such that the second speech-enabled
8 site obtains the information associated with the user from the first speech-enabled site.

1 40. A method as recited in claim 31, wherein said using the server system to broker
2 information comprises:

3 acquiring the information associated with the user from a first site on the
4 network based on an interaction between the user and the first site; and

5 providing the information to a speech-enabled site on the network in response to
6 the user accessing the speech-enabled site.

1 41. A method as recited in claim 40, wherein the information is for use by the speech-
2 enabled sites on the network in optimizing spoken dialogs with the user.

42. A method as recited in claim 31, further comprising maintaining a look-up service in the browser, the look-up service configured to enable the speech-enabled sites to access the information.

43. A method of facilitating operation of a speech-enabled site on a network, the method comprising:
receiving a request at a server system for information associated with a user, the request associated with a speech-enabled site on the network and relating to a dialog between the speech-enabled site and the user, the information maintained on a second site on the network; and
using the server system to enable the speech-enabled site to obtain the information associated with the user from the second site.

44. A method as recited in claim 43, wherein said using the server system comprises executing a speech-enabled browser.

45. A method of facilitating operation of a speech-enabled site on a network, the method comprising:
receiving a request at a server system for information associated with a user, the request associated with a speech-enabled site on the network and relating to a dialog between the speech-enabled site and the user, the information maintained on a second

6 site on the network; and

7 using the server system to provide a service of the second site to the speech-
8 enabled site, to provide the information associated with the user to the speech-enabled
9 site.

1 46. A method as recited in claim 45, wherein said using the server system comprises
2 executing a speech-enabled browser.

1 47. An apparatus for optimizing a spoken dialog between a human user and a
2 processing system, the apparatus comprising:
3 means for receiving information associated with the user; and
4 means for using the information to reduce an amount of information the user is
5 required to provide during a spoken dialog between the user and the processing
6 system.

1 48. An apparatus as recited in claim 47, wherein said means for receiving information
2 associated with the user comprises means for receiving the information from a remote
3 site on a network in response to the user accessing the processing system.

1 49. A speech-enabled processing system comprising:
2 an audio interface with a remote user;
3 a processor;

4 a storage facility coupled to the processor and having instructions stored therein
5 which, when executed by the processor, cause the speech-enabled processing system to:
6 receive information associated with the remote user from a remote
7 processing system,
8 use the information to optimize a spoken dialog between the remote user
9 and the speech-enabled processing system, and
10 initiate execution of the optimized spoken dialog between the remote user
11 and the speech-enabled processing system using the audio interface.

1 50. An apparatus configured to allow a user to interactively browse a telephony-based
2 network, the apparatus comprising:

3 means for coupling a user to a first speech-enabled service at a first location on
4 the network;

5 means for acquiring information associated with the user;

6 means for outputting an indication audibly detectable by the user, the indication
7 corresponding to a second speech-enabled service at second location on the network;

8 means for detecting the user speaking an utterance matching the indication;

9 means for coupling the originating user to the second speech-enabled service in
10 response to the user speaking an utterance matching the audio indication; and

11 means for providing the information associated with the user to the second
12 speech-enabled service in response to the user speaking an utterance matching the
13 audio indication, the information for use by the second speech-enabled service to

~~Sub Q3) optimize a spoken dialog between the user and the second speech-enabled service.~~

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51. An apparatus as recited in claim 47, further comprising means for using the information associated with the user at the second speech-enabled site to optimize a spoken dialog between the user and the second speech-enabled site.

52. A system comprising:

- a first processing system configured to execute a speech-enabled browser, the browser configured to maintain information associated with a user; and
- a second processing system coupled on a network to the first processing system and configured to operate as a speech-enabled site, the second processing system configured to
 - in response to receiving an access request from a remote user, transmit a request to the browser for the information associated with the user;
 - receive the information associated with the user in response to transmitting the request;
 - apply the information associated with the user to optimize the dialog with the user by reducing the number of required states of the dialog; and
 - execute the optimized dialog with the user.

1 53. A system as recited in claim 52, wherein the browser is further configured to broker
2 the information for speech-enabled sites on the network.

54. A system as recited in claim 53, wherein the browser is configured to broker the information associated with the user by selectively providing the speech-enabled sites with access to the information associated with the user.

55. A system as recited in claim 53, wherein the browser is configured to broker the information associated with the user by verifying access to the information by executing a user verification process.

56. A system comprising:

a first processing system configured to execute a speech-enabled browser, the browser configured to maintain information associated with a user; and

a second processing system coupled on a network to the first processing system and configured to operate as a speech-enabled site, the second processing system configured to

maintain data for executing a dialog with a user of a third processing system on the network;

receive an access request corresponding to activation of a voice hyperlink by the user;

in response to receiving the access request, transmit a request to the browser for the information associated with the user;

receive the information associated with the user in response to

14 transmitting the request;

15 use the information associated with the user to optimize the dialog with

16 the user; and

17 execute the optimized dialog with the user.

57. A system as recited in claim 56, wherein the first processing system is configured to broker the information for speech-enabled sites on the network.

58. A system as recited in claim 57, wherein the first processing system is configured to broker the information associated with the user by selectively providing the speech-enabled sites with access to the information associated with the user.

59. A system as recited in claim 58, wherein the first processing system is configured to broker the information associated with the user by verifying access to the information by performing a voiceprint analysis of the user.

60. A speech-enabled network comprising:

a plurality of speech-enabled sites; and

a central server coupled to the plurality of speech-enabled sites, the central server

including:

a processor; and

a storage facility coupled to the processor and storing instructions which,

- 7 when executed by the processor, cause the central server to selectively provide the
- 8 speech-enabled sites with access to information about users of the speech-enabled sites.

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